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THE HUMAN SIDE OF UNCLE SAM
Nation's School of the Air.

THE UNITED STATES WEATHER BUREAU

A conversation between Commander F. W. Reichelderfer, Chief of the Weather Bureau, and Charles Herndon, student in Paul Junior High School, for broadcast on April 20, 1939, originating in the studios of WOL, Washington, at 10:15 A.M., E.S.T.

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CINCINNATI ANNOUNCER:
Let's visit for a few minutes with Uncle Sam.

Waiting in Washington is Commander F. W. Reichelderfer, Chief of the United States Weather Bureau. With him is Charles Herndon, 15 year old student in the Paul Junior High School, in Washington. Charles is always present when representatives of the Department of Agriculture take part in the Nation's School of the Air -- and he has the knack of getting a lot of information out of the men he talks with. Chuck, suppose you go to work on Commander Reichelderfer. And be sure you find out everything you can about the weather.

(SWITCH TO WASHINGTON)

HERNDON:
I'll do what I can. But first -- I want to find out something about Commander Reichelderfer. That title -- "Commander" -- that sounds like a Navy title, Mr. Reichelderfer.

COMMANDER REICHELDERFER:
That's correct, Charles. It <u>is</u> a Navy title.

HERNDON:
Were you commander of a ship?

REICHELDERFER:
No---I was in charge of the meteorological service of the navy---the branch of the service which studies the weather.

HERNDON:
Oh---does "meteorological"---mean the weather?

REICHELDERFER:
Well---meteorology is the <u>science</u> of the weather. That name came into being before the birth of Christ---when it was believed that the weather had some relationship to meteors--or shooting stars.

HERNDON:
But they don't have anything to do with the weather, do they?

REICHELDERFER:
No---but the name "meteorology" has stayed in use for a long time--and I suppose we'll always call the science of the weather by that name.

(over)

HERNDON:

I guess everybody's interested in the weather. Some of the fellows were talking yesterday evening about having a ball game on Saturday -- if it's a nice day. Do you suppose it will be?

REICHELDERFER:

Are you asking me to make a forecast of the weather for next Saturday, Chuck?

HERNDON:

Well -- I think it would be swell if you could.

REICHELDERFER:

Our forecasters at the Weather Bureau make use of hundreds of weather reports in preparing a forecast.--and I don't have all of the necessary information here-- but I do have some weather maps -- and they're one thing that we need. Here's a weather map for today -- here's another based on observations last night -- and here's a third map -- based on observations yesterday morning.

HERNDON:

Do your men make these maps twice a day?

REICHELDERFER:

Yes -- twice a day at present. We're about to change our plans so we can put out weather maps and forecasts four times a day.

HERNDON:

Does the weather change so much that you need to do that?

REICHELDERFER:

The weather is changing every minute of the day, Chuck. The temperature rises or falls; the air pressure, measured on a barometer, goes up or down; the speed and direction of the wind changes, and the amount of moisture in the air varies. All those things are part of the weather.

HERNDON:

Well -- on these weather maps here -- what do all these curving lines mean?

REICHELDERFER:

Those lines are what we call iso-bars, and iso-therms. Now -- "Iso" means -- "equal" or "the same". "Therm" -- means heat or temperature.

HERNDON:

Then Iso-therm must mean "the same temperature".

REICHELDERFER:

That's it. These dotted lines are the isotherms. This line here is marked 50 degrees. Every point along that line had a temperature of 50 degrees at 7:30 o'clock this morning. Along this line -- all the temperatures were 60 degrees -- 10 degrees warmer. By studying this map you could tell within a few degrees what the temperature was at 7:30 o'clock this morning at almost any point in the country.

HERNDON:

You mean 7:30 Washington time, I suppose.

REICHELDERFER:
That's correct -- 7:30 o'clock Washington time. On the West Coast, it was 4:30 when the observation was made. Now, these solid lines are iso-bars -- which indicate the places where the atmospheric pressure is the same.

HERNDON:
Just what do you mean by atmospheric pressure, Sir!

REICHELDERFER:
Well -- the air all around you and me is bearing down on us -- putting pressure on us. We live in this pressure all the time -- so we don't notice it -- but it's there just the same. And the pressure is changing all the time. These changes in pressure have an important bearing on the weather -- which is the reason why we want to keep up with the pressure changes.

HERNDON:
And these lines here on the map -- the solid lines -- did you say they show the places where the air pressure is the same?

REICHELDERFER:
That's right.

HERNDON:
Well -- you said the pressure was important in figuring out what the weather is going to be . Just how does it affect the weather?

REICHELDERFER:

Without going into a lot of details -- here's about what it means, Chuck: low pressure usually means bad weather -- rain, snow or storms; high pressure usually means fair weather. But it is not quite as simple as that -- there are many complications which the forecaster must untangle in his mind before he can make a good forecast.

HERNDON:
But low pressure means bad weather -- high pressure means fair weather. Then on the map here -- this spot marked low -- that means that they're probably having some rain there this morning. That's in (State) . And the high pressure place -- in (State) they're having fair weather there.

REICHELDERFER:
You're getting the idea, Chuck. Now -- those areas are changing -- moving across the country usually toward the east. Part of the job of the forecaster is to predict where the low pressure area is going, taking its bad weather with it.

HERNDON:
Well - if it moves to the east -- that shouldn't be so hard.

REICHELDERFER:
Yes -- but we don't know whether it's going to go northeast -- or southeast. It may curve to the north -- and then to the south -- it may move rapidly or slowly. Sometimes lows do not move; now and then they move westward. They seldom follow the same path -- so there's no telling what they'll do. And there are many different things that may have an influence. That's why forecasting the weather is a

difficult job -- one that takes a great deal of study and training.

HERNDON:
How long does it take to become a weather forecaster?

REICHELDERFER:
Well -- first of all -- a man needs to go to college and study all he can of physics, meteorology, and subjects that have a bearing on the weather. Then -- if he becomes a district forecaster in 10 or 15 years of work with the weather bureau, he's doing pretty well.

HERNDON:
Ten or fifteen years! -- gee! -- it must be a tough job! Say -- how do you get all the information you need to make those maps, Commander?

REICHELDERFER:
We have weather observers stationed all over the country -- more than 400 of them in the United States. Every morning at 7:30 o'clock, Washington time, they send in telegraph reports giving the temperature, pressure, how much cloudiness there is in the sky, the kind of clouds, and in which direction they are moving, humidity -- that's the amount of moisture in the air -- they report on what the weather is at that point -- how high the celing is -- something about the visibility -- and other facts of that kind. They do the same thing again at 7:30 o'clock in the evening. Some observers report more often than that; along the airways they report every hour --day and night alike. All that information is put onto maps just as soon as it is received at the weather bureau here -- and then the forecaster studies the information on the maps -- and makes his forecast.

HERNDON:
Gee -- it takes a lot of different people to get that weather information from all over the country, doesn't it?

REICHELDERFER:
Yes, it does, Chuck. And we get weather reports from outside of the United States, too -- from all parts of Canada -- from Alaska, Siberia, Greenland, the Azores -- from Mexico and the West Indies -- becuase the weather in all those places has an influence sooner or later on the weather in the United States. Our cold waves seem to come from somewhere up in Canada or Alaska. And our hurricanes usually start somewhere in the vicinity of the West Indies--Cuba, Jamaica, or Puerto Rico.

HERNDON:
And if it looks as though a hurricane is going to hit this country, I suppose you put out warnings, don't you?

REICHELDERFER:
Indeed we put out warnings---announcements over radio stations, in newspapers--warnings to people who live in lowlands to move to higher ground to escape the tidal waves that are caused by the high winds. We use signal flags and radio warnings to the ships at sea.

And keeping track of rivers--and issuing flood warnings is another service of the Weather Bureau.

HERNDON:
Say---I guess the weather bureau does a lot of things besides tell us when it's going to rain so we can wear our raincoats---doesn't it?

REICHELDERFER:
Many things besides that, Chuck. There's a great deal more than comfort and convenience involved. Many businesses wouldn't attempt to operate without the information provided by the Weather Bureau.

HERNDON: I'll bet the airlines wouldn't fly without it.

REICHELDERFER:
Indeed they wouldn't -- and we provide special service, several times every day -- for the air lines of the country to protect their pilots and their passengers. The railroads operate in all kinds of weather, of course, but they need to know about such things as heavy snowfalls, floods and cold waves. An engine can't pull nearly as many cars when it is extremely cold as it can in moderate weather.

HERNDON:
I'll bet the companies that sell coal and fuel oil are glad to know about a cold wave. It means more money for them.

REICHELDERFER:
Yes -- but it also means they have to stock up more heavily on their supplies. Farmers -- well -- there's no business that is more dependent upon the weather than farming. Rain, hail, drouth, frost -- all have their influence on the farmer's business. In fruit growing sections where frost could damage thousands of dollars worth of fruit, we provide special frost warnings, so the growers can start their heaters.

HERNDON:
You mean they actually build fires out of doors to heat up a whole orchard?

REICHELDERFER:
I should say they do -- and it means savings of millions of dollars worth of fruit. Speaking of savings -- almost any one of our hurricane warnings -- which results in keeping ships in some safe place -- is worth a good many millions of dollars to the shipping industry. It was estimated at 30 millions for one warning.

HERNDON:
I don't think there's any question, Mr. Reichelderfer -- the weather bureau pays it way - how much does it cost?

REICHELDERFER:
Very little - less than 4 cents per year for each person in the country.

HERNDON:
Say -- you were talking about hurricanes a minute ago. How fast does the wind travel in them?

REICHELDERFER:
Up to 150 miles an hour or more but nobody has ever been able to measure the speed of the wind in a tornado -- but it's estimated to be as high as four or five hundred miles an hour.

HERNDON:
How fast have you measured the wind?

REICHELDERFER:
The highest speed on record was recorded back in 1931 -- on top of Mt. Washington, in New Hampshire -- 231 miles an hour. But that wasn't a hurricane or tornado, that was just an ordinary wind -- moving unusually fast over a mountain top. If you're interested in extremes -- here are some that might interest you. How cold do you suppose it gets?

HERNDON:
Well -- I was reading about Admiral Byrd -- down near the South Pole. He said it got down to 80 degrees below zero.

REICHELDERFER:
Pretty cold, isn't it? But even that isn't a record. At one point in Siberia a temperature of 90 degrees below zero was recorded.

HERNDON:
Ninety below zero! It makes me cold just to think about it.

REICHELDERFER:
Well -- maybe this will warm you up. At Greenland Ranch in California, the thermometer has registered as high as 133 degrees.

HERNDON:
In the shade?

REICHELDERFER:
Yes -- in the shade -- although there isn't much shade where this temperature occurred. You see, Chuck -- keeping records like that is another of the jobs of the weather bureau.

By the way -- you'd be interested in seeing how we use airplanes at 90 different points of the country every day to give us information about weather conditions in the upper atmosphere several miles high. That information helps us greatly in making our weather forecasts more accurate.

HERNDON:
How accurate are your weather forecasts, Commander?

REICHELDERFER:
Well -- the shorter the time for which we made the forecasts -- the more accurate we can make them. But for our forecasts 36 hours in advance, we're right from 85 to 90 percent of the time, depending on the section of the country. It is harder to forecast for some places than for others.

HERNDON:
I'd say 85 to 90 percent is a mighty good average. But say -- you haven't forgotten about the forecast you were going to make for me, have you?

REICHELDERFER:
Not at all, Chuck -- You want to know whether Saturday will be a good day to play baseball, of course. Now -- let's get our heads together over this weather map, and we'll see what we can ----- FADE OUT (SWITCH TO CINCINNATI.)